

SECTION 16320

SWITCHBOARD

PART 1 - GENERAL

- 1.1 Provide switchboards with the number and size of branch circuits and with the arrangement and capacity of bus and incoming service as shown. Switchboard shall conform to latest UL and NEMA standards and shall bear UL labels.

PART 2 - PRODUCTS

2.1 SWITCHBOARD

- A. Switchboard shall be equal to SQUARE-D, power style, type QMB, or I-line. Switchboard shall be a free standing, dead front, totally enclosed. The switchboard shall be designed and manufactured to be completely front accessible and conform to the requirements of a NEMA Class I switchboard.
- B. Enclosure: The base frame to be constructed of code gauge formed steel angles, channels and back plate welded together. The frame enclosure top and side plates shall be flat and screw removable. The front closure members shall be screw removable panels or hinged doors. All front closure members shall be formed with rolled edges. The entire unit shall be mechanically rigid. Louvers shall be furnished as required for proper ventilation. The switchboard shall have a die-formed base piece welded to the structure. It shall be of sufficient strength to support the entire switchboard for lifting by a fork truck and moving on rollers. Four base mounting holes shall be furnished in the base through which 1/2" lag bolts shall be used for securely mounting the switchboard in place. Two lifting eye bolts shall be furnished and installed through switchboard top plates and connected to the frame work to support the total weight of the entire switchboard.
- C. Finish: After fabrication and before assembly, the switchboard welded framework and all associated enclosure parts shall be thoroughly cleaned. The switchboard finish shall consist of a phosphate rust inhibiting primer and a finish coat of alkyd base gray baked enamel.
- D. Buss: All internal conductors shall be plated aluminum bus bars of sufficient cross sectional area to carry the rated ampere load and not exceed the maximum heat rise above ambient temperature as specified by Underwriter's Laboratories and NEMA. Bus bar joints and connections shall be bolted with hardened steel bolts and Belleville Pressure type washers.
- E. Current transformer compartment; the switchboard shall contain a current transformer compartment approved for use by utility company for installation and operation of current and potential transformers. Contractor shall verify and execute all coordination efforts necessary for successful installation of current and potential transformers and metering equipment.
- F. Main Circuit Breaker: The main circuit breaker shall be equal to Square D type "SE", fixed mounted, manually operated, 100% rated with two-step stored energy mechanism, local ammeter, local trip indicators for overload, short circuit and ground fault. The main

circuit breaker shall be equipped with a trip unit that has long time, short time, instantaneous and ground fault settings.

- G. Distribution section shall consist of a molded-case thermal-magnetic circuit breaker assembly group mounted in a panel-type construction. Circuit breakers shall be rated as indicated on drawings. Tripping mechanisms shall consist of thermal and magnetic trip elements on each pole. Trip indication shall be provided on the breaker handle. Means shall be provided for padlocking handle in the "ON" and "OFF" position.
- H. Where a "space" is indicated on the drawings or elsewhere, the space shall be "fully equipped" and ready for the direct insertion of a circuit breaker. Additional hardware, bus extension kits, strap kits, and so forth shall not be required in order to properly add a circuit breaker to a designated "space".
- I. Metering: The switchboard shall have a Square D or equal digital powermeter #PM820 capable of reading current, voltage, power energy, demand and frequency.
- J. Circuit breakers shall have 100% AIC rating, unless stated otherwise on drawings.

PART 3 - EXECUTION

3.1 SWITCHBOARD

- A. Secure switchboard in place with lag screws in expansion shields set in concrete pad. Provide 2 1/2" high concrete housekeeping pad above equipment room floor on which to mount and secure the switchboard. Pad shall be 2 1/2 inches larger all around than the switchboard base structure.

- 3.2 TESTING: After assembly and before shipment, the entire switchboard shall be factory tested for proper electrical coordination and continuity. The testing shall be in accordance with the latest applicable standards of IEEE, ANSI and NEMA.

END OF SWITCHBOARD